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ON THE
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BY
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It has been shown, by Max Herrmann and Ludwig, that the rapidity of the urinary secretion depends on the difference in pressure between the blood in the renal glomeruli and the urine in the urinary tubules.

At present, it is generally assumed that the diuretic action of *Digitalis* is not caused by any specific influence of the drug upon the kidney, but is due exclusively to its power of increasing the blood-pressure in the arterial system.

The results of some experiments made by us nearly a year ago show that this is not the fact. On injecting a considerable dose of digitalin (1-2 centigrammes) into the veins of an etherized dog, we have observed that the secretion of urine was either greatly diminished or ceased altogether, while the blood-pressure rose, occasionally to a considerable extent. After some time the blood-pressure again fell; and in some of the experiments the secretion of urine recommenced at the instant the fall began. In other instances it did not recommence till the blood-pressure had sunk below the normal. Occasionally the secretion did not flow with its original rapidity, but in others it was poured forth copiously, even although the blood-pressure had sunk considerably below the normal.

If *Digitalis* acted as a diuretic only by raising the blood-pressure, the flow of urine should have been greatly increased immediately after the injection, and should have diminished with the fall of arterial tension. Instead of this the secretion was least when the blood-pressure was highest, and most copious when the tension had fallen below the normal.

The explanation we would offer of these phenomena is, that *Digitalis* probably stimulates the vaso-motor nerves generally, but affects those of the kidney more powerfully than those of other parts of the body. Thus, it causes a moderate contraction of the systemic vessels, and raises the blood-pressure in them, but, at the same time, produces excessive contraction of the renal vessels, so as to stop the circulation in the kidneys and arrest the secretion of urine.

As the action of the drug on the systemic vessels passes off they relax, and the blood-pressure falls; but the renal arteries probably dilate more quickly and to a greater extent than the others. The pressure of blood in the glomeruli may thus be increased above that normally present in them, although the tension in the arterial system generally may have fallen below the normal.

Additional evidence in favour of this explanation is afforded by the fact that the urine collected after the reestablishment of secretion contains albumen, just as Herrmann found it to do after mechanical arrest of the circulation through the renal arteries.

We do not overlook the possibility that the alteration in secretion may be partly due to the direct action of the drug on the secreting elements of the kidneys, and we are still engaged in experiments on this subject.

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